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April 26, 1995

EX PARTE PRESENTATION

VIA HAND DELIVERY
Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Mr. Caton:

On April 26, 1995, a meeting was held at the Commission by and among Eric J. Schimmel, Vice President of the Telecommunications Industry Association ("TIA"); Denis Couillard, Manager, Regulatory Affairs of Harris Farinon Canada and Vice Chairman of the Fixed Point-to-Point Communications Section, Network Equipment Division of TIA; Fred Thomas, Charles J. Iseman, Esq. and Tom Mooring of the FCC's Office of Engineering and Technology; Robert J. Miller, Esq., counsel to Alcatel Network Systems, Inc.; and Leonard R. Raish and Eric Fishman of the law firm of Fletcher, Heald & Hildreth, PLC. At the meeting the parties discussed matters relating to the Comments and Reply Comments filed by TIA In ET Docket No. 94-124, RM-8308. Copies of the attached material were distributed to the Commission's staff.

No. of Copies rec'd 0+1
List A B C D E

An original and copy of this letter , with attachments, are submitted herewith. Should any questions arise concerning this filing, please contact the undersigned counsel.

Sincerely,

Eric Fishman

Counsel to
Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association
Harris Corporation - Farinon Division

EF/dd
Attachments

cc: Fred Thomas
Charles J. Iseman, Esq.
Tom Mooring
Michael J. Marcus

EX PARTE PRESENTATION

MEETING OF TIA FIXED MICROWAVE SECTION WITH THE FCC ON THE USE OF RADIO FREQUENCIES ABOVE 40 GHZ

- In the recent Reply Comments of that proceeding, 9 commenters (AT&T, mmWave Advisory Group, HP, Hughes Aircraft, Association of American Railroads, TIA, Harris, DMC and ALCATEL) explicitly supported the establishment of licensed point to point microwave bands at 50 and 55 GHz.

- 50 and 55 GHz are international microwave bands, officially established in Europe (CEPT/ETSI), in Japan and at the ITU. Several commenters, such as AT&T, HP and TIA have highlighted the importance and the advantages of having internationally based allocations.

- These two bands are specifically needed in USA for short range, broadband point-to-point links supporting the NII. AT&T, mmWave Advisory Group, HP, Hughes Aircraft, TIA and Harris have all commented on that matter.

- In general, the comments show an exceptionally clear vision for the establishment of licensed point-to-point bands at 50 and 55 GHz and of an unlicensed point- to- point band in the 59-64 GHz range.

- The only conflicting opinion worth noting is that of NASA, asking for exclusive satellite (passive sensors) allocations at 50.2-50.4 and 54.25 - 56 GHz. TIA proposes microwave bands in 48.5-51.4 GHz and 55.2-58.2 GHz (International microwave allocations are 47.2-51.4 GHz and 54.25 - 58.2 GHz).

- The extraordinary NASA proposal would require a change in International allocation and could only be considered at a forum such as WRC-95.

- The US manufacturers of microwave equipment already manufacture point-to-point radios at 50 GHz. In addition, they view the 55 GHz band as particularly attractive because of its exceptional frequency re-use capabilities and because of the international consensus to make it a microwave point-to-point band.

- It is suggested that TIA proposals are perfectly in line with current international allocations and trends and that they are widely supported by the US industry. Since that same industry has no intention to manufacture microwave radio at 64 GHz, it is also suggested that NASA considers that band or higher frequencies for oxygen absorption characteristics and passive sensors applications.

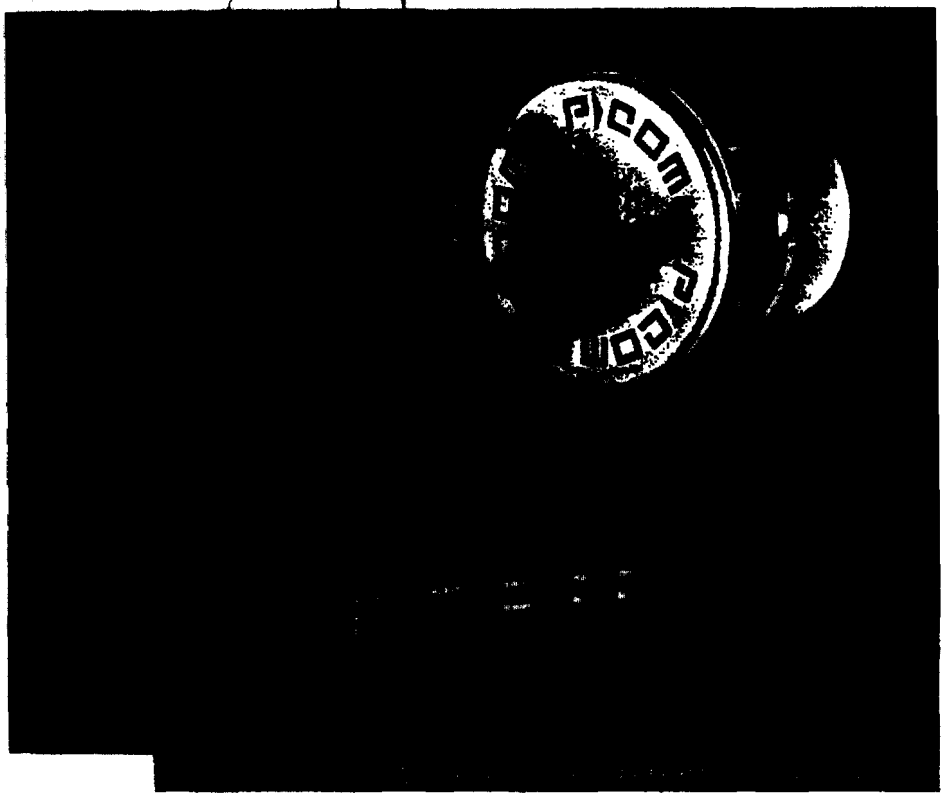
Tel-Link 50

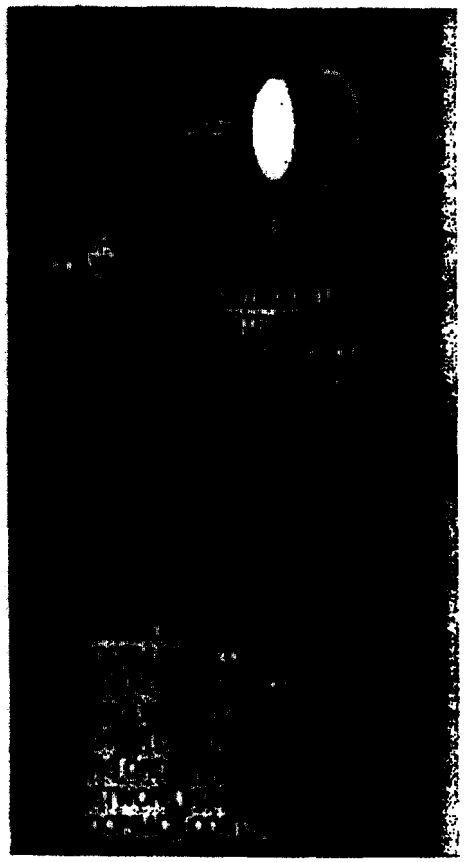
E1, 2E1 & 4E1

50 GHz Digital Millimetre Wave Radio System

FEATURES

- Fully Integrated RF Electronics for Maximum Reliability and Small Size
- Indoor Unit Shelf Common to Tel-Link 23, Tel-Link 38 and Tel-Link 50 Systems
- System Capacity, Output Power and RF Frequency Changes with No Access to Outdoor Unit Required
- Advanced Forward Error Correction Enhances Performance and System Availability
- No Tuning or Adjustments Required for Simple Installation and Ease of Maintenance
- Software Controlled Capacity Upgrading from Indoor Unit
- Fully Shielded for EMC





SYSTEM DESCRIPTION

The Tel-Link 50 Radio System provides a cost-effective and immediate solution to voice and data transmission requirements in capacities from 2 to 8 Mb/s. Consisting of an Outdoor Unit (ODU), an Indoor Unit (IDU) and a single coaxial cable for the ODU-IDU interconnection, the Tel-Link 50 System is ideally suited for networks operated by PCN/cellular service providers, utilities, public telephone operators, local governments and private users.

The ODU consists of a light weight, compact, integrated RF electronics enclosure attached to an antenna with a diameter of 300 mm. The millimetre wave technology employed permits the complete integration of all millimetre wave functions into a single, small, rugged subassembly. This technology yields a significant increase in reliability when compared to conventional approaches. Typically, the ODU is installed outdoors on a tower or rooftop.

The IDU is an indoor mounted assembly that contains all of the baseband electronics including the functions of line interface, digital multiplexing, modulation and frequency generation. It also includes the alarm and diagnostic, service channel and network management interfaces. Furthermore, within the IDU is the capability to set the system capacity, frequency synthesiser and power output of the radio; no access to the Outdoor Unit is required. The IDU packaging allows it to exist as a stand-alone unit installed in a standard relay rack or be integrated within a customer's existing site equipment.

The advanced technology, architecture and features of P-Com's Tel-Link 50 System coupled with its cost-effectiveness provide a reliable network solution for a wide variety of voice and data transmission requirements.

[illegible] 50 Specifications [illegible] 2E1 & 4E1

General

Capacities	1 x 2.048, 2 x 2.048, 4 x 2.048 Mb/s
RF Channel Spacing	E1 & 2E1 - 10 MHz, 4E1 - 20 MHz
Digital Input/Output Conn.	BNC -75 Ohm unbalanced, 120 Ohm balanced (optional)
Digital Line Code	HDB3
Modulation Type	2-FSK (4-FSK optional)
Operating Freq. Range	49.2 to 50.2 GHz
Tx-Rx Spacing	500 MHz
Tuning Range	250 MHz
Frequency Source	Synthesiser
RF Channel Selection	IDU Controlled or via NMS
System Configurations	Non-Protected (1 + 0), Protected (1 + 1)
Loopbacks	Indoor Unit, Outdoor Unit, Link

System Gain (Non-Protected)

		w/FEC	w/o FEC
10^{-6} BER	E1	92 dB	89 dB
	2E1	89 dB	86 dB
	4E1	86 dB	83 dB
		w/FEC	w/o FEC
10^{-3} BER	E1	94 dB	92 dB
	2E1	91 dB	89 dB
	4E1	88 dB	86 dB

Transmitter (Non-Protected)

Power Output	+8 dBm (6 mW)
Freq. Stability	±0.0008%
Attenuation Range	25 dB

Environmental

Temperature Range	
Outdoor Unit	-30°C to +60°C
Indoor Unit	-10°C to +55°C
Relative Humidity	
Outdoor Unit	Up to 100% (all-weather operation)
Indoor Unit	95% at +55°C
Altitude	4,500 m

Specifications reflect typical performance, are subject to change without notice, and apply to equipment connected back-to-back unless otherwise noted.

IDU - Indoor Unit
ODU - Outdoor Unit
NMS - Network Management System
FEC - Forward Error Correction

ISO-9001

Receiver (Non-Protected)

		w/FEC	w/o FEC
Receiver Sensitivity (10^{-6} BER)	E1	-84 dBm	-81 dBm
	2E1	-81 dBm	-78 dBm
	4E1	-78 dBm	-75 dBm
Receiver Sensitivity (10^{-3} BER)		w/FEC	w/o FEC
	E1	-86 dBm	-84 dBm
	2E1	-83 dBm	-81 dBm
	4E1	-80 dBm	-78 dBm
Receiver Overload (10^{-6} BER)		-15 dBm	
Receiver Overload (10^{-3} BER)		-13 dBm	
Receiver Type		Dual Conversion	
Intermed. Freq.		140 MHz	
Unfaded BER		10^{-13} or better	
Forward Error Correction (FEC)		Optional	

Power Requirements

Standard Input	-48 VDC	
Optional Input	+24/-24 VDC	
Power Consumption (Non-Protected) (Typical)	E1	40W
	2E1	40W
	4E1	45W

Mechanical

Dimensions	
Outdoor Unit	250mm dia., 200mm depth (10" dia., 8" depth)
Indoor Unit	89mm x 483mm x 267mm (3.5" x 19" x 10.5")
Weight	
Outdoor Unit	4.5 kg (10 lbs.)
Indoor Unit	3.6 kg (8 lbs.)
IDU-ODU Interconnection	
No. of Cables	1 coaxial cable
Distance	Up to 300m (1000 ft)
Rec. Cable	Belden 9913 (RG-8) or equivalent
Connector Type	"N" Male

Service Channels (Optional)

Number of Channels	Three
Capacity (each channel)	64 kb/s
Available Channel Configurations	
Engineering Orderwire	300-3400 Hz
Digital Data Channel	Up to 9600 bit/s
Network Mgmt. System	Customised
User Interfaces	
Engineering Orderwire	RJ-11
Data Channel & NMS	RS-232C, RS-422/423

Antenna

Diameter	300mm (12")
Gain	39 dBi
Beamwidth	1.6°
Polarisation	Vertical or Horizontal
Elevation Adj.	±20°-coarse, ±10°-fine
Azimuth Adj.	±180°-coarse, ±10°-fine
Std. Mounting	44mm - 114mm O.D. Pole (1.75" - 4.5")
Windloading	50 m/s (112 mph) - Operational
	70 m/s (157 mph) - Survival

P-COM

[illegible]

ALCATEL

Alcatel Radio Transmission Systems

50 GHz	*Zone of application*	*Applicable standard*
49200/50200 MHz	UK Mercury	MCL T0421
(The band is currently being redefined by the CEPT. The provisional band is:		
48500/51400 MHz	CEPT	)

		T/R separation
49200/50200 MHz	MCL T0421 (UK)	500 MHz

55 GHz	*Zone of application*	*Applicable standard*
54250/57200 MHz	CEPT	prETS 300-407
54250/57200 MHz	UK	MPT 1416

(The band is currently being redefined by the CEPT. The merging of 55 and 58 GHz bands is envisaged into 55200/58200 MHz)

		T/R separation
54250/57200 MHz	MPT 1416 (UK)	1470 MHz

58 GHz	*Zone of application*	*Applicable standard*
57200/58200 MHz	CEPT	prETS 300-408
57200/58200 MHz	UK	MPT 1415

(The band is currently being redefined by the CEPT. The merging of 55 and 58 GHz bands is envisaged into 55200/58200 MHz)

		T/R separation
57200/58200 MHz	MPT 1415 (UK)	500 MHz

CEPT Project Team SE19 **SE19(94) 96**
London 20 September 1994

Origin United Kingdom

Subject **Draft recommendation of a frequency plan for the band 48.5 - 51.4 GHz**

Introduction

At the third meeting of PT SE19 it was requested that a draft recommendation for the frequency band 48.5 - 51.4 GHz be proposed with the aim of the long term frequency harmonisation of this band (i.e. by the year 2008).

At the last meeting it was agreed to use paper SE19(94)17 as the basis for this draft recommendation, accordingly the draft recommendation is now submitted for the consideration of the meeting.

CEPT Recommendation T/R.XX.XX

Harmonised radio frequency channel arrangements for digital terrestrial fixed systems operating in the band 48.5 - 51.4 GHz.

The European Conference of Post and Telecommunications Administrations,

considering that,

a) CEPT has a long term objective to harmonise the use of frequencies throughout Europe and that the Detailed Spectrum Investigation has recommended harmonisation of this band by 2008,

b) CEPT should develop radio frequency channel arrangements in consultation with organisations developing standards for radio systems, in order to make the most effective use of the spectrum available,

c) the propagation characteristics of the band 48.5 - 51.4 GHz are ideally suited to short range low and medium capacity digital fixed systems,

d) the anticipated developments in telecommunications networks will require large numbers of short range links in the supporting infrastructure,

e) any radio frequency channel arrangement should incorporate a provision for the future introduction of improved equipment standards,

noting that,

a) Article 8 of the Radio Regulations allocates the band 48.5 - 50.2 GHz on an equal primary basis to the Fixed, Fixed-Satellite and Mobile services. Sharing criteria between Fixed and Mobile, and Fixed and Fixed-Satellite services ~~may be~~ are required.

b) Article 8 of the Radio Regulations allocates the band 50.2 - 50.4 GHz on an equal primary basis to the Fixed, Earth Exploration Satellite (passive), Mobile and Space Research (passive) services. Sharing criteria between Fixed and Mobile, Fixed and Earth Exploration Satellite (passive), and Fixed and Space Research (passive) services ~~may be~~ are required.

c) Article 8 of the Radio Regulations allocates the band 50.4 - 51.4 GHz on an equal primary basis to the Fixed, Fixed-Satellite and Mobile services. Sharing criteria between Fixed and Mobile, and Fixed and Fixed-Satellite services ~~may~~ are required.

d) In some CEPT countries there are existing fixed systems that operate in bands contained within the band 48.5 - 51.4 GHz on national channel arrangements and are not operating in accordance with the channel arrangements given in Annex A.

e) In some CEPT countries the band 48.5 - 51.4 GHz is not currently available for the Fixed Service.

f) ~~Current equipment standards support a 7 MHz raster.~~

Recommends that

a) CEPT administrations which have the band 48.5 - 51.4 GHz available for the Fixed Service should follow the recommended radio frequency arrangements for the band 48.5 - 51.4 GHz given in Annex A.

b) Administrations that have existing systems operating within the band 48.5 - 51.4 GHz may allow these systems to remain until the year 2008 and may determine on a national basis, the degree of protection given. Any international co-ordination that may be required between existing and new systems shall be in accordance with Article 12 of the Radio Regulations.

ANNEX A

Let

fo be the centre frequency of 49952 MHz (14272 x 3.5 MHz)
fn be the centre frequency of the radio-frequency channel in the lower half of the band
fn' be the centre frequency of the radio-frequency channel in the upper half of the band
TX/RX separation = 1470 MHz
Band separation = 70 MHz

then the frequencies of individual channels are expressed by the following relationships :-

a) for systems with a carrier spacing of 28 MHz

lower half of the band : $fn = fo - 1449 + 28n$
upper half of the band : $fn' = fo + 21 + 28n$

where n = 1 , ... 50

b) for systems with a carrier spacing of 14 MHz

lower half of the band : $fn = fo - 1442 + 14n$
upper half of the band : $fn' = fo + 28 + 14n$

where n = 1 , ... 100

c) for systems with a carrier spacing of 7 MHz

lower half of the band : $fn = fo - 1438.5 + 7n$
upper half of the band : $fn' = fo + 31.5 + 7n$

where n = 1 , ... 200

d) for systems with a carrier spacing of 3.5 MHz

lower half of the band : $fn = fo - 1436.75 + 3.5n$
upper half of the band : $fn' = fo + 33.25 + 3.5n$

where n = 1 , ... 400

ANNEX B

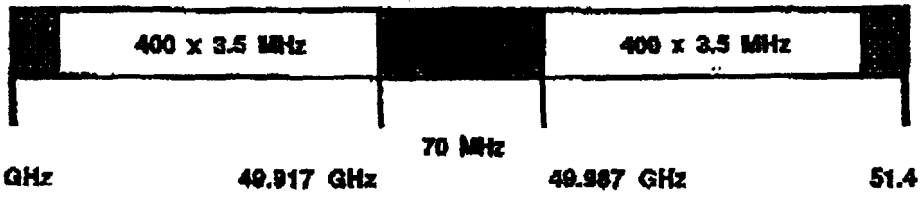
Frequency Plan 48.5 - 51.4 GHz

a) 28 MHz channels (3.5 MHz x 8)

b) 14 MHz channels (3.5 MHz x 4)

c) 7 MHz channels (3.5 MHz x 2)

d) 3.5 MHz channels (3.5 MHz x 1)



DE/TM-04006 reviewed **FINAL DRAFT for TM approval**

EUROPEAN TELECOMMUNICATION STANDARD

FINAL DRAFT
pr ETS 300 407
October 1994

Source: ETSI TC-TM Reference: DE/TM-04006

UDC:

Key words:

Transmission and Multiplexing (TM);

Parameters for radio-relay systems for the transmission of digital signals and analogue video signals operating around 55 GHz

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

This ETS specifies the minimum performance parameters for radio equipment operating at frequencies around 55 GHz, as specified in the scope. Other standards cover radiocommunications equipment not listed in Clause 1.

Annex A (Bibliography) provides details of the informative references provided in this ETS.

Annex B provides references for performance predictions and objectives.

1 Scope

This draft European Telecommunication Standard (ETS) covers the minimum performance requirements for terrestrial fixed services radiocommunications equipment, as given below, at frequencies around 55 GHz.

This ETS specifies the performance criteria for the different equipment groups. The equipment groups are:

- digital signals;
- analogue video signals.

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] prETS 300 132-1: "Equipment Engineering; Power supply interface at the input to telecommunications equipments Part 1: Interfaces operated by alternating current (AC)" (DE/EE-02001.1).

[2] prETS 300 132-2: "Equipment Engineering; Power supply interface at the input to telecommunications equipments Part 2: Interfaces operated by direct current (DC)" (DE/EE-02001.2).

[3] ETS 300 019: "Equipment engineering; Environmental conditions and environmental tests for telecommunications equipment".

[4] ITU-T Recommendation G.703: "Physical/electrical characteristics of hierarchical digital interfaces".

[5] ITU-T Recommendation G.707: "Synchronous digital hierarchy bit rates".

[6] ITU-T Recommendation G.708: "Network node interface for the synchronous digital hierarchy".

[7] ITU-T Recommendation G.709: "Synchronous multiplexing structure".

[8] ITU-T Recommendation G.781: "Structure of Recommendations on multiplexing equipment for the synchronous digital hierarchy (SDH)".

[9] ITU-T Recommendation G.782: "Types and general characteristics of synchronous digital hierarchy (SDH) multiplexing equipment".

[10] ITU-T Recommendation G.783: "Characteristics of synchronous digital hierarchy (SDH) multiplexing equipment functional blocks".

[11] ITU-T Recommendation G.784: "Synchronous digital hierarchy (SDH) management".

[12] CCIR Recommendation 403: "Intermediate-frequency characteristics for the interconnection of analogue radio-relay systems".

3 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

BER	Bit Error Ratio
C/I	Carrier/Interference
IF	Intermediate Frequency
FM	Frequency Modulation
ppm	parts per million
PAL	Phase Alternate Line
RF	Radio Frequency
RSL	Receiver Signal Level
SDH	Synchronous Digital Hierarchy
SRL	Spectrum Reference Level

4 General characteristics

4.1 Frequency bands and channel arrangements

4.1.1 Frequency band

The frequency band is 54,25 GHz to 57,2 GHz.

Note: This band is currently under review by CEPT for compatibility with earth exploration space applications.

Channel Plan: the channel plan is constructed on a basic raster of 14 MHz.

4.1.2 Co-polar channel spacing

Table 1: Digital systems

Minimum system rate Mbit/s	Maximum channel spacing MHz
2	14
8	28
34	56
140/155	140

Table 2: Analogue systems

Video baseband MHz	< 3,5	< 6	< 10	< 14
Channel spacing MHz	42	70	70	70

4.1.3 Transmit/receive centre gap

The centre gap shall be taken as a multiple of the basic raster distance of 14 MHz, and shall not be greater than 70 MHz.

4.1.4 Transmit/receive duplex frequency separation

The transmitter receiver duplex frequency separation shall not be less than 500 MHz. (Typical separations will be around 1 000 MHz).

4.3 Compatibility requirements between systems

In order to provide compatibility between systems there should be no requirement to operate transmitting equipment from one manufacturer with receiving equipment from another.

DE/TM-04007 reviewed **FINAL DRAFT for TM approval**

EUROPEAN TELECOMMUNICATION STANDARD

FINAL DRAFT
pr ETS 300 408
October 1994

Source: ETSI TC-TM Reference: DE/TM-04007

UDC:

Key words:

Transmission and Multiplexing (TM);

Parameters for radio-relay systems for the transmission of digital signals and analogue video signals operating around 58 GHz, which do not require co-ordinated frequency planning

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

This ETS specifies the minimum performance parameters for radio equipment operating at frequencies around 58 GHz, which do not require coordinated frequency planning, as specified in the scope. Other standards cover radiocommunications equipment not listed in Clause 1.

1 Scope

This draft European Telecommunication Standard (ETS) covers the minimum performance requirements for terrestrial fixed services radiocommunications equipment, as given below, at frequencies around 58 GHz which do not require coordinated frequency planning.

This ETS specifies the performance criteria for the different equipment groups. The equipment groups are:

- digital signals;
- analogue video signals.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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[3] ETS 300 019: "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment".

3 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

AC	Alternating Current
DC	Direct Current
EIRP	Equivalent Isotropically Radiated Power
ppm	parts per million
RF	Radio Frequency

4 General characteristics

4.1 Frequency bands and channel arrangements

4.1.1 Frequency band

The frequency band is 57,2 GHz to 58,2 GHz.

Note: This band is currently under review by CEPT for compatibility with earth exploration space applications.

Channel plan: the channel plan consists of 10 channels.

4.1.2 Co-polar channel spacing

All systems shall use a channel spacing of 100 MHz.

4.1.3 Transmit/receive centre gap

Because of the non-regulated nature of the band, a centre gap is not required.

EX PARTE PRESENTATION

MFLSC/MMWG(90)27
Issue 6

June 1991

MPT 1416

ISSUE 6

Performance Specification

Performance Specifications and
Frequency Assignment Criteria for
Analogue and Digital Microwave
Fixed Link Radio Equipment
Operating in the Frequency Band
54.25 - 57.2 GHz

Foreword

1 It is required by the Wireless Telegraphy Act, 1949 (as modified by the Post Office Act, 1969) that no radio apparatus shall be installed or used in the United Kingdom except under the authority of a licence granted by the Secretary of State. It is a condition of such a licence that the performance of the apparatus must meet certain minimum standards.

2 The minimum standards of performance are given in specifications prepared by the Radiocommunications Agency, in consultation with the relevant manufacturers and operators.

For convenience, to avoid the need to test every piece of equipment, manufacturers are invited to make representative production models of their equipment available for testing by or under the control of the Agency.

Manufacturers or their specified agents who wish to submit equipment for type approval testing should apply to:

Radiocommunications Agency
Fixed Services Section
Room 309
Waterloo Bridge House
Waterloo Road
London SE1 8UA Telephone 071.215.2099

3 The application should state when and where the tests can be carried out and should be accompanied by a description of the apparatus, including drawings and test results obtained in the manner described in the appropriate performance specification.

It should also list all type numbers that may apply to non-technical variants of the model submitted.

Radiocommunications Agency reserves the right to give separate type approval to models it considers to be technical variants and whose performance may differ as between types.

4 The application specifications should be accompanied by the appropriate charge for type approval testing. Information on such charges is available from the above address.

5 Performance specifications may be subject to amendment. Intending manufacturers should ensure they possess the latest copy of the relevant specification, complete with any amendments.

CONTENTS

NOTE: The Performance Specification for Private Fixed Link Radio Equipment for the transmission of Television or RADAR remoting signals or equivalent for use in the frequency band 54.25 GHz to 57.2 GHz is now included in MPT 1418.

MPT 1416

PART 1

STANDARD REQUIREMENTS

Requirements common to all equipment

1 GENERAL

1.1 Scope of Specification

This specification covers the minimum mandatory requirements of multi-channel digital transmitters and receivers for use on Microwave Radio Link systems in the frequency band 54.25 GHz to 57.2 GHz. Modulation techniques shall be employed which are compatible with the limits for radiated spectrum defined within this document.

Details of the minimum performance requirements of 60 GHz antennas are contained in part 3 of this Specification.

Requirements to bring the specification into line with forthcoming EEC EMC directives are under consideration.

1.2 Operating Frequencies

The equipment shall provide for the transmission and reception of emissions in the frequency band 54.25 GHz to 57.2 GHz. The precise operating frequencies shall be quoted by the Secretary of State when a licence is issued. For the purpose of type testing, the equipment may be submitted on a mutually agreed channel in the above frequency band.

1.3 Controls

Those controls which if maladjusted might increase the interfering potentialities of the equipment shall not be easily accessible.

1.4 Declarations

When submitting an item for type approval, the manufacturer shall supply the following:-

(a) i) Nominal frequency of the transmitter

ii) For non-synthesised equipment, carrier reference frequency and carrier generation formula.

(b) i) Nominal frequency of the receiver.

ii) For non-synthesised equipment, local oscillator reference frequency and local oscillator generation formula.

(c) Rated radio frequency output power at the radio frequency output port.

(d) Digital interface characteristics, eg
Traffic rate
Input/output levels
Input/output impedances

(e) Nominal supply type and voltage